

IN THE CLAIMS:

Please cancel claims 31-32, 37-38, and 46-48.

Please amend the claims as follows:

1. – 28. Cancelled.

29. (Currently Amended) A method of cementing a borehole, comprising:
extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;
drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;
providing at least one secondary fluid passage between the interior of the drill string and the borehole;
providing a barrier across the at least one secondary fluid passage;
rupturing the barrier, thereby opening the at least one secondary fluid passage;
and
directing a physically alterable bonding material into an annulus between the drill string and the borehole through the at least one secondary fluid passage.

30. (Original) The method of claim 29, further comprising flowing a physically alterable bonding material through the drill string and into an annulus between the drill string and the borehole prior to directing the physically alterable bonding material into the annulus between the drill string and the borehole through the at least one secondary fluid passage.

31. – 32. Cancelled.

33. – 36. Cancelled.

37. – 38. Canceled.

39. (Currently Amended) The method of claim [[38]] 29, wherein rupturing the barrier comprises increasing fluid pressure on one side of the barrier to a level sufficient to rupture the barrier.

40. (Currently Amended) The method of claim [[37]] 29, wherein the at least one secondary passage is opened when the physically alterable bonding material reaches the location of the at least one secondary passage after flowing the physically alterable bonding material through the drill string and into the annulus.

41. (Previously Presented) The method of claim 29, wherein the physically alterable bonding material comprises cement.

42. (Previously Presented) The method of claim 29, wherein the earth removal member is a drill bit.

43. (Currently Amended) The method of claim 29, wherein directing the physically alterable bonding material through the at least one secondary fluid passage includes blocking the at least one fluid passage through the earth removal member.

44. (Previously Presented) The method of claim 43, wherein blocking the at least one fluid passage through the earth removal member comprises:

providing a ball seat positioned in intersection with the at least one fluid passage;
and

selectively positioning a ball on the ball seat and in a blocking position over the at least one fluid passage.

45. (Previously Presented) The method of claim 44, further comprises providing the ball to the ball seat from a location remote therefrom.

46. – 48. Cancelled.

49. (Previously Presented) The method of claim 29, further comprising providing a float shoe intermediate the location where the physically alterable bonding material is introduced into the interior of the drill string and the at least one secondary passage; and

positioning a float collar in the float shoe, thereby preventing flow of the physically alterable bonding material from the location between the drill string and borehole to the interior of the drill string.

50. (Previously Presented) The method of claim 49, wherein positioning the float collar is undertaken during the flowing of the physically alterable bonding material into the annulus.

51. (Previously Presented) The method of claim 49, wherein positioning the float collar is undertaken after the flowing of the physically alterable bonding material into the annulus is completed.

52. (Previously Presented) The method of claim 29, further comprising:
providing at least one additional secondary passage intermediate the lower terminus of the borehole and a surface location;
cementing the borehole at a location adjacent to the terminus of the borehole;
further directing the physically alterable bonding material down the drill string;
and
directing the physically alterable bonding material through the additional secondary passage.

Please add the following new claims:

53. (New) A method of cementing a borehole, comprising:

extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;

drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;

providing at least one secondary fluid passage between an interior of the drill string and the borehole;

providing a sleeve positioned over an element of the drill string and intermediate the at least one secondary passage and the annulus and at least one shear element interconnecting the sleeve to the element of the drill string;

moving the sleeve to allow a physically alterable bonding material to flow through the at least one secondary passage; and

directing the physically alterable bonding material into an annulus between the drill string and the borehole.

54. (New) The method of claim 53, further comprising using fluid pressure to shear the at least one shear element.

55. (New) The method of claim 53, wherein the at least one shear element comprises a pin.

56. (New) The method of claim 53, further comprising:

providing a piston integral with the sleeve; and

using hydrostatic pressure to urge the piston to open the at least one secondary passage to communicate with the annulus.

57. (New) A method of cementing a borehole, comprising:

extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;

drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;

providing at least one secondary fluid passage between an interior of the drill string and the borehole;

providing a float shoe intermediate the location where the physically alterable bonding material is introduced into the interior of the drill string and the at least one secondary passage;

positioning a float collar in the float shoe, thereby preventing flow of the physically alterable bonding material from the location between the drill string and borehole to the interior of the drill string; and

directing a physically alterable bonding material into an annulus between the drill string and the borehole through the at least one secondary fluid passage.

58. (New) The method of claim 57, wherein positioning the float collar is undertaken during the flowing of the physically alterable bonding material into the annulus.

59. (New) The method of claim 57, wherein positioning the float collar is undertaken after the flowing of the physically alterable bonding material into the annulus is completed.

60. (New) A method of cementing a borehole, comprising:

extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;

drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;

providing at least one secondary fluid passage between an interior of the drill string and the borehole;

directing a physically alterable bonding material into an annulus between the drill string and the borehole through the at least one secondary fluid passage; and

allowing the physically alterable bonding material to harden in the annulus between the drill string and the borehole.

61. (New) A method of cementing a borehole, comprising:

extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;

drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;

providing at least one secondary fluid passage between an interior of the drill string and the borehole;

directing a physically alterable bonding material into an annulus between the drill string and the borehole through the at least one secondary fluid passage; and

positioning a one way valve intermediate a location where the physically alterable bonding material is introduced into the interior of the drill string and the at least one second passage, thereby preventing flow of the physically alterable bonding material from the location between the drill string and borehole to the interior of the drill string.

62. (New) The method of claim 61, further comprising allowing the physically alterable bonding material to harden in the annulus.

63. (New) A method of cementing a borehole, comprising:

extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;

drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;

providing at least one secondary fluid passage between an interior of the drill string and the borehole;

directing a physically alterable bonding material into an annulus between the drill string and the borehole through the at least one secondary fluid passage;

providing at least one additional secondary passage intermediate the lower terminus of the borehole and a surface location;

cementing the borehole at a location adjacent to the terminus of the borehole;

further directing the physically alterable bonding material down the drill string;
and

directing the physically alterable bonding material through the additional secondary passage.

64. (New) The method of claim 29, further comprising drilling through at least a portion of the earth removal member.

65. (New) The method of claim 29, further comprising milling at least a portion of the earth removal member.

66. (New) The method of claim 53, further comprising drilling through at least a portion of the earth removal member.

67. (New) The method of claim 53, further comprising milling at least a portion of the earth removal member.

68. (New) The method of claim 60, further comprising drilling through at least a portion of the earth removal member.

69. (New) The method of claim 60, further comprising milling at least a portion of the earth removal member.

70. (New) The method of claim 61, further comprising drilling through at least a portion of the earth removal member.

71. (New) The method of claim 61, further comprising milling at least a portion of the earth removal member.

72. (New) A method of cementing a borehole, comprising:

extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;

drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;

providing at least one secondary fluid passage between an interior of the drill string and the borehole;

directing a physically alterable bonding material into an annulus between the drill string and the borehole through the at least one secondary fluid passage; and

drilling through at least a portion of the earth removal member.

74. (New) The method of claim 72, wherein the earth removal member comprises a drill bit.

75. (New) The method of claim 74, wherein the drill string comprises a casing.

76. (New) The method of claim 74, wherein the drill string comprises a liner.

77. (New) The method of claim 72, wherein the at least one secondary fluid passage is located in a sidewall of the earth removal member.

78. (New) The method of claim 29, wherein the at least one secondary fluid passage is located in a sidewall of the earth removal member.

79. (New) A method of cementing a borehole, comprising:
extending a drill string into the earth to form the borehole, the drill string including an earth removal member having at least one fluid passage therethrough, the earth removal member operatively connected to a lower end of the drill string;
drilling the borehole to a desired location using a drilling mud passing through the at least one fluid passage;
providing at least one secondary fluid passage between an interior of the drill string and the borehole;
directing a physically alterable bonding material into an annulus between the drill string and the borehole through the at least one secondary fluid passage; and
milling at least a portion of the earth removal member.
80. (New) An apparatus for cementing a borehole, comprising:
a drill string having a drill bit operatively connected to a lower end of the drill string, wherein the drill bit has at least one fluid passage therethrough;
at least one secondary fluid passage between an interior of the drill string and the borehole, wherein the at least one secondary fluid passage is adapted for fluid communication from the interior of the drill string to an annulus between the drill string and the borehole;
a rupturable barrier blocking fluid communication through the at least one secondary fluid passage.
81. (New) The apparatus of claim 80, wherein the rupturable barrier comprises a rupturable membrane.
82. (New) The apparatus of claim 80, wherein the at least one secondary fluid passage is located in a sidewall of the drill bit.
83. (New) The apparatus of claim 80, wherein the drill string is one of a casing or a liner.

84. (New) A drill bit, comprising:
a drill body having a side wall and a lower end;
at least one fluid passage through the lower end;
at least one secondary fluid passage through the sidewall; and
a rupturable barrier blocking fluid communication through the at least one secondary fluid passage.
85. (New) The drill bit of claim 84, wherein the rupturable barrier comprises a rupturable membrane.